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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/510,300	02/22/2000	Sung-II Park	8733.20044	2217
30827	7590	06/15/2006	EXAMINER	
MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			DUONG, THOI V	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/510,300

Applicant(s)

PARK ET AL.

Examiner

Thoi V. Duong

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-21 ~~is~~ are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5, 10-18, 20 and 21 ~~is~~ are allowed.
- 6) ☒ Claim(s) 6, 8, 9 and 19 ~~is~~ are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 03, 2006 has been entered.

Accordingly, claim 1 was amended, and claim 7 was cancelled. Currently, claims 1-6 and 8-21 are pending in this application.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 6, 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. (Shimada, USPN 5,877,830) in view of Jung (USPN 6,300,987 B1).

Re claim 6, as shown in Figs. 1-3, Shimada discloses a liquid crystal display 200 (LCD) comprising:

a thin film transistor plate 1 (active matrix substrate) further comprising:

a gate line 2 (gate signal line) on a first transparent substrate 1a (col. 4, lines 35-54),

a first data line 8 (source signal line at left of Fig. 1) arranged to cross the gate line 2 wherein the gate line 2 is insulated from the data line 8 via a gate insulating film 3 (col. 4, line 64 through col. 5, line 13),

a gate electrode 2a protruding from said gate line 2 in an area where said data line 8 crosses said gate line 2 as shown in Fig. 1 (col. 4, lines 38-40),

a thin film transistor 250 having a source electrode (6a, 7a) connected to the first data line 8 and a drain electrode (6b, 7b) separated from the source electrode as shown in Fig. 2 (col. 4, line 64 through col. 5, line 24),

a passivation layer 9 covering the thin film transistor 250 wherein a contact hole 10 exposing a portion of the drain electrode (6b, 7b) is formed in the passivation layer 9 (col. 5, lines 39-44), and

a pixel electrode 11 on the passivation layer 9 and being connected to the drain electrode (6b, 7b) through the contact hole 10, wherein the pixel electrode 11 partially overlaps the first data line 8 at a first end of the pixel electrode 11 (left end of the pixel electrode 11 in Fig. 1) (col. 5, lines 25-44);

a color filter plate 12 (counter substrate) including a black matrix 13 (black mask), a color filter 14 and a common electrode 15 on a second transparent substrate 12a as shown in Fig. 2 (col. 5, lines 51-58); and

liquid crystals 17 provided and sealed between the thin film transistor plate 1 and the color filter plate 12 (col. 8, lines 13-19),

wherein the pixel electrode 11 partially overlaps a second data line 8 (source signal line at right of Fig. 1) at a second end of the pixel electrode (right end of the pixel electrode in Fig. 1) opposite to the first end (col. 5, lines 29-31).

Shimada also discloses that the overlap width of the pixel electrode 11 and the data line 8 is about 1.0 micrometer or more to perform a display without crosstalk (col. 9, line 58 through col. 10, line 2; and col. 10, lines 61-64). However, Shimada does not disclose that an overlap width between the pixel electrode and the first data line is between 2 micrometer and 4 micrometer, and an overlap width between the pixel electrode and the second data line is less than 2 micrometer.

As shown in Fig. 7, Jung discloses an LCD comprising a pixel electrode 510 partially overlapping the first data line 310 (at left of Fig. 7) at a first end of the pixel electrode 510 (left end of the pixel electrode 510 in Fig. 7) and an overlap width between the first data line 310 and the pixel electrode is W1; and partially overlapping a second data line 310 (at right of Fig. 7) at a second end of the pixel electrode (right end of the pixel electrode in Fig. 7) opposite to the first end and an overlap width between the pixel electrode 510 and the second data line 310 is W3, wherein W1 is wider than W3 so as to minimize the light leakage at the edges of the pixel electrode with respect to the rubbing direction R (col. 5, lines 31-50).

As mentioned above, Shimada suggests an overlap width of the pixel electrode and the data line being about 1 micrometer or more, for example, about more than 2 micrometers. Accordingly, with the teaching of Jung, it is obvious to one having ordinary skill in the art to modify the LCD of Shimada by having an overlap width W1 between

Art Unit: 2871

the first data line and the pixel electrode being about more than 2 micrometers and an overlap width W3 between the second data line and the pixel electrode being about less than 2 micrometers since W3 is less than W1 in order to minimize the light leakage at the edges of the pixel electrode according to the rubbing direction (col. 5, lines 31-50).

Re claim 8, as shown in Fig. 7, Jung discloses that an overlap width between the pixel electrode 510 and the first data line 310 is selected according to a direction R of rubbing an alignment film (col. 3, lines 31-50).

Re claim 19, as shown in Fig. 7, Jung discloses that a first overlap width W1 between the first data line 310 and the pixel electrode 510 is larger than a second overlap width W3 between the pixel electrode 510 and the second data line 310 (col. 5, lines 31-40).

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. (Shimada, USPN 5,877,830) in view of Jung (USPN 6,300,987 B1) as applied to claims 6, 8 and 19 above, and further in view of Ohta et al. (Ohta, US 6,208,399 B1).

The LCD of Shimada as modified in view of Jung above includes all that is recited in claim 9 except for the passivation layer being an organic passivation layer.

As shown in Fig. 3, Ohta discloses an LCD comprising an organic passivation layer PSV2 coated on the uppermost layer of thin film transistor substrate for enhancing the flatness of the thin film transistor substrate (col. 3, lines 16-20 and col. 9, lines 2-8).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the LCD of Shimada with the teaching of Ohta by having an organic passivation layer for the passivation layer in order to

enhance the flatness of the thin film transistor substrate, and hence the uniformity of the brightness due to the elimination of the irregularities of the gap between the substrates (col. 3, lines 16-24).

***Allowable Subject Matter***

5. Claims 1-5, 10-18, 20 and 21 are allowed.

The following is an examiner's statement of reasons for allowance: none of the prior art of record fairly suggests or shows all of the limitations as claimed. Specifically,

Re claim 1, none of the prior art of record discloses, in combination with other limitations as claimed, a liquid crystal display comprising a pixel electrode being connected to the drain electrode through the contact hole and partially overlapping the data line on a first transparent substrate; and a black matrix, a color filter and a common electrode on a second transparent substrate, the black matrix being extended along the data line to overlap partially and asymmetrically with the data line.

The most relevant reference, US 5,870,157 to Shimada et al. (Shimada), fails to suggest a black matrix being extended along the data line to overlap asymmetrically with the data line. As shown in Figs. 1, 4 and 5, Shimada discloses a liquid crystal display comprising a pixel electrode 21 being connected to the drain electrode through the contact hole 26 and partially overlapping the data line 10 on a first transparent substrate 18 (col. 4, lines 42-61 and col. 8, lines 57-67); and a black matrix 16, a color filter 13 and a common electrode 15 on a second transparent substrate 19, the black matrix 16 being extended along the data line 10 to overlap partially with the data line 10 as shown in Fig. 4 (col. 6, lines 26-40 and col. 6, line 65 through col. 7, line 32).

Art Unit: 2871

However, Shimada does not disclose that the black matrix 16 asymmetrically overlaps the data line 10; Shimada only suggest that the line width W2 of the black matrix 10 is smaller than the respective line width W1a of the data line 10 (col. 9, lines 33-46).

Re claims 10, 15 and 20, none of the prior art of record discloses, in combination with other limitations as claimed, a cut-off film formed under the data line, wherein an edge portion of the cut-off film is overlapped by an edge portion of the data line and the pixel electrode partially overlaps the data line, and an overlap length between the edge portion of the cut-off film and the edge portion of the data line is substantially the same as an overlap length between the pixel electrode and the data line.

The most relevant reference, USPN 5,953,088 to Hanazawa et al. (Hanazawa), fails to disclose or suggest an overlap length between the edge portion of the cut-off film and the edge portion of the data line is substantially the same as an overlap length between the pixel electrode and the data line. As shown in Figs. 11 and 15, Hanazawa discloses a cut-off film 53a(SH) formed under the data line 50a(X), wherein an edge portion of the cut-off film is overlapped by an edge portion of the data line and the pixel electrode 51(PE) partially overlaps the data line 50a(X); however, an overlap length between the edge portion of the cut-off film 53a(SH) and the edge portion of the data line 50a(X) is not the same as an overlap length between the pixel electrode 51(PE) and the data line 50a(X).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably



Art Unit: 2871

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Response to Arguments***

6. Applicant's arguments filed February 03, 2006 have been fully considered but they are not persuasive.

Re claim 6, Applicant argued that Shimada (US 5,877,830) teaches away from the claimed invention where "the pixel electrode partially overlaps a second data line at a second end of the pixel electrode opposite to the first end and an overlap width between the pixel electrode and the second data line is less than 2 micrometers" since the claimed invention suggests that an overlap width between the pixel electrode and the second data is less than 2 micrometers, which means that an overlap width between the pixel electrode and the second data could be less than 1 micrometer while Shimada teaches that the overlap width of the pixel electrode and the data line is about 1 micrometer or more to perform a display without crosstalk.

The Examiner disagrees with Applicant's remarks since the claimed range of "less than 2 micrometers" overlaps the range of "1 micrometer or more" disclosed by Shimada (col. 9, lines 58-67). Moreover, Applicant did not claim a range of "less than 1 micrometer" in claim 6. Thus, Shimada does not teach away from the claimed invention since a prima facie case of obviousness exists (See MPEP 2144.05 [R-3]).

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-

Art Unit: 2871

2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms, can be reached at (571) 272-1787.

Thoi V. Duong

A handwritten signature in black ink, appearing to read 'Thoi V. Duong', written in a cursive style.

06/03/2006